mors are so painful that the use of local anesthesia usually is not satisfactory. Radium or roentgen therapy is not indicated, and has been of no benefit in reported cases in which it has been used.

Although glomus tumor was recognized and described in 1924 by Masson, it is more than likely that the disease described in older textbooks and by early writers[4] as "painful subcutaneous tubercle" was subcutaneous glomus tumor.

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REFERENCES

1. Barre, J. A., and Masson, P.: Bull. Soc. franc. de dermat. et syph., 31, R. S. 148, 1924. Masson, P.: Lyon Chir., 21:257, 1924.

2. Grieg, D. M.: Edinburgh M. J., 35:565, 1928. Adair, F. E.: Am. J. Surg., 25:1–6, 1934. Mason, M. L., and Weil, A.: Surg. Gynec. and Obst., 25:1, 1934. Lewis, Dean, and Geschickter, C. F.: J. A. M. A., 105:775, 1935. Livingston, W. K.: West. J. Surg. Gynec. and Obst., 43:329, 1935. Bailey, O. T.: Am. J. Path., 11:915, 1935. Geschickter, C. F.: Internat. Clin., 2:1, 1936.

3. Popoff, N. W.: Arch. Path., 18:295, 1934.

4. Wood, William: Edinburgh, M. J., 8:283, 1812. Hall, M.: Edinburgh M. and S. J., 11:466, 1815. Chandelux, A.: Arch. de physiol. norm. et path., 9:639, 1882. Da Costa: Modern Surg., ninth edition, pp. 229. Kolaczek J.: Deutsche Ztschr. f. Chir., 9:165, 1878.

DISCUSSION

DAVID A. WOOD, M. D. (Department of Pathology, Stanford University School of Medicine, San Francisco).—Doctor Chandler has quite adequately described the clinical and morphological features of glomus tumors. From a pathological viewpoint, it is important to point out that glomus tumors are probably much more frequent than present statistics indicate, many are erroneously diagnosed angiomas, neuromas, myomas, etc. Inasmuch as glomus tumors are organoid in type, and any of the various constituents may predominate, special stains are necessary in order to make the correct histological diagnosis. It is all the more paramount, therefore, that the histopathologist should be furnished with a brief, but adequate history on all subcutaneous tumors, so that he may be made familiar with the clinical story, and order special stains on all cases clinically suspicious. Demonstration of the argentophil granules in the "glomus cells" can be readily accomplished by the use of cresyl echt-violet stain, a procedure much more simple than the Cajal reduced-silver technique.

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HAROLD E. CROW, M. D. (2417 South Hope Street, Los Angeles).—I wish to report an additional case in which the symptoms were of twelve years' duration, and relieved by the removal of a glomus tumor which lay under the toenail in the proximal portion of the nail bed. The medical history is chiefly interesting because of the number of diagnoses which had been offered this patient through a period of twelve years. The diagnoses were as follows: Gout, arthritis, brain tumor, spinal cord tumor, neuralgia of the sensory nerve supply to the great toe, an atypical Buerger's disease. All of these diagnoses were made by reputable physicians and followed by adequate treatment for the current diagnosis, without any relief of the patient's symptoms. At the end of twelve years the pain was still recurring at intervals of one to two weeks, lasting forty-eight hours at each attack and sufficiently severe to require morphin for relief. As the years progressed, the pain became more extensive, so that at the time of our examination she complained that the pain started in the great toe, involving the entire leg and thigh during the forty-eight hours of suffering. The patient is now four months postoperative, and has had no recurrence of symptoms.

One sign mentioned in Doctor Chandler's paper, which must be emphasized since it is so characteristic as to be diagnostic, is the occurrence of sudden, unprovoked pain at intervals. The "trigger pain" is characteristic of this tumor.

RADIATION THERAPY: ITS STATUS IN THE PRACTICE OF MEDICINE*

By WILLIAM E. COSTOLOW, M.D.
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THE rapid advance which has been made in radiology during the past few years is constantly before the eyes of those of us who are working in that field. The changes in types of apparatus and technique—in diagnosis and therapy—have made it difficult even for one who specializes in this branch of medicine to keep abreast of this progress. How, then, can the general medical man be expected to understand its value and the indications for its use?

Although this science dates back to shortly before the beginning of the century, radiation therapy has been almost completely developed and placed on a scientific basis during the past fifteen years. Most medical men now in practice were taught nothing regarding this subject during their medical school days. In fact, only recently have lectures and clinics in radiology been included in the medical curriculum.

In practice, the requirements of expensive apparatus and special training in technique, coupled with the fear of using a potentially dangerous modality, have almost entirely prevented the use of radiation therapy by the general practitioner. Realizing that the members of this Section are, themselves, radiologists, it may nevertheless not be amiss to review and consider some of the recent advances.

In the development of any new method of treatment there is always an overenthusiasm, and radiation therapy has proved no exception to the rule. At first, attempts were made to treat practically all pathological processes of the skin and its contents. As a better understanding of the physical properties and biological effects of the rays has been obtained, more definite indications and contraindications for its use have been established and the knowledge passed on to the general medical practitioner. At times, irradiation has been considered as only a part of cancer therapy, whereas its most extensive use is probably in the treatment of benign conditions.

RADIATION THERAPY FOR INFLAMMATORY CONDITIONS

In cellulitis, furunculosis, carbuncles, adenitis, and acute surgical parotitis, irradiation has been used extensively for a great many years. In these acute inflammations the rays destroy the surrounding leukocytes, liberating protective substances or antibodies, making them more rapidly available for combating the acute infection. The best results are obtained if the treatment is given in the early stages of the inflammatory process. Acute surgical parotitis shows very rapid response if treated within the first twenty-four hours following onset. Radium packs are used chiefly in this condition as a matter of convenience so that the patient will

*Chairman's address, Radiology Section of the California Medical Association at the sixty-sixth annual session, Del Monte, May 2–6, 1937.

not have to be moved from his bed. Simple adenitis in children has been found to be amenable to very small doses of roentgen ray, which should be applied early. Many surgical incisions may be avoided. Treatment of the spreading edges of erysipelas is well known. Irradiation has also been used in the very early stages of sinusitis and mastoiditis—at times abortioning early cases from abscess formation when surgical interference is so frequently necessary.

In chronic inflammations, especially tuberculosis, irradiation has been of great value. Tubercular cervical adenitis may be completely controlled by this means. The extensive surgical block dissections which were done a few years ago for this condition are practically unheard of at the present time. This procedure is harmless to the skin or general condition of the patient. In chronic arthritis, especially gonorrheal arthritis, local roentgen-ray treatment has been a definite aid to other forms of therapy.

In the treatment of acne, irradiation is awarded a prominent rôle by all dermatologists. The fungus infections, actinomycosis, blastomycosis, and others, have also been greatly benefited by irradiation.

USE IN ENDOCRINE DISTURBANCES

Radiation therapy entered the field of endocrinology some time ago, the chief efforts being directed to the thymus, thyroid, pituitary, and ovaries.

Thymus.—While there has been much *discussion* among pediatricians regarding the presence of, or indications for treatment of, suspected enlarged thymus, the therapeutic radiologist is often requested to treat these cases. Often the diagnosis is very difficult to establish, either from symptoms or roentgenological evidence. However, as clinical benefit following treatment of babies with obstructive respiratory symptoms is often obtained, this procedure is frequently carried out. The very small amount of irradiation used as a therapeutic test can in no way be deleterious to the patient.

Thyroid.—Authentic reports in our literature have established the value of irradiation in the treatment of hyperthyroidism. Properly selected cases of toxic goiter have been rendered symptom free. Cases presenting adenomas should undoubtedly be operated upon. Published statistics show that, in uncomplicated hyperthyroidism, irradiation produces about the same percentage of five-year cures as surgery—neither method curing all cases. In recurrences following surgery, irradiation has been used extensively.

Pituitary.—The successes of irradiation in the treatment of the pituitary have been accomplished chiefly in patients with dysmenorrhea, exaggerated menopausal symptoms, and young individuals showing excessive growth.

Conclusive reports have been made of the favorable effect of irradiation upon the pituitary in patients suffering with dysmenorrhea (notably Newell and Petitt). Small doses relieved the majority of their symptoms. In treatment of the pituitary for the relief of severe menopausal symptoms, the effect is due to the reduction of the hyperfunction of the anterior portion of the pituitary. This hyperfunction occurs following the removal of ovarian hormones after the menopause. In young individuals with excessive growth due to hyperfunction of the pituitary, irradiation is used to reduce the overactivity of the gland.

APPLICATION IN GYNECOLOGY

One of the largest fields for radiation therapy has been in gynecology.

Menorrhagia and Fibroids.—The menorrhagias occurring around the menopause and the uterine fibromata have been treated in great numbers by these methods. In 1929, Ernst Von Armon reviewed 15,000 myomas and hemorrhagic metropathies treated in Germany in a five-year period by radiation therapy. Burnham and Kelly of Baltimore have treated over 1,800 cases. In our own clinic (Soiland, Costolow, and Meland) we have treated 1,576 uterine fibroids during the years 1921 to 1936 by irradiation methods alone. As time goes on, the importance of irradiation in the treatment of these conditions is being more definitely established. Not all fibroids, of course, are amenable to irradiation treatment, but in women of forty, or over, the contraindications are becoming fewer, as experience has shown the increasing value of the nonsurgical method, which carries no mortality rate. The chief indications for the treatment of any fibroid are bleeding and pressure symptoms. Irradiation can practically always be relied upon to control the bleeding. In the large majority of cases the fibroid masses will also disappear. In fibroids larger than a four months' pregnancy, it is often difficult to determine the proper diagnosis of the existing pelvic pathology. Few failures in the irradiation treatment of fibroids would occur if only those cases were treated in which a definite diagnosis could be made and complicating coexisting pathology ruled out before treatment was commenced.

The artificial menopause produced by irradiation is no different from the normal menopause—no mental or physical complications of any kind are produced. Occasional cases of excessive nervousness are seen, of course, but these occur in women going through the normal menopause. No change in sexual function is produced, and usually the patient's general condition is noticeably improved.

A combination of intra-uterine radium and external roentgen ray is generally used in the treatment of fibroids, although curettement before treatment, to rule out malignancy, should usually be performed. Roentgen-ray treatment alone is more simple and cannot produce any local complications.

FOR LYMPHOBLASTOMAS

In chronic lymphatic leukemia, myelogenous leukemia, and Hodgkin's disease, the importance of radiation therapy is so well established that little comment is necessary. Except for supportive medical care, irradiation therapy is the accepted method of treatment at the present time. Marked temporary palliation and prolongation of life are obtained.

RÔLE OF RADIATION THERAPY IN CANCER

In cancer, radiation therapy cannot be considered as a comparative or alternate method of treatment to surgery. The two methods must be used properly, both singly and in combination, in a carefully planned manner, if the best results are to be obtained. In fact, a new specialty is appearing—cancer therapy. This particular phase of medicine requires the service of a physician who is thoroughly trained in pathology, radiation therapy, and surgery (if such a superphysician exists!), or the services of a group of men who are trained in these branches and closely associated in the actual care of the cancer patient.

It will be attempted here to briefly sum up the present-day concept of the uses and value of irradiation in the more common types of cancer met in daily practice.

Skin Malignancies.—Skin malignancies may be destroyed by any local method which will destroy all the tumor cells. Surgery, cauterization, caustics, radium, and roentgen ray have all been used successfully. The location of the growth often determines the agent which should be used to assure the best cosmetic results, together with adequate destruction. For this reason radium is nearly always used in treating growths around the eyelids and nose. Many advanced destructive lesions around the face have been successfully treated by fractionated doses of radium and roentgen ray, preventing deformities which would have been produced had surgical excision or extensive cauterization been used. The primary lesion in practically all skin malignancies can be eradicated by proper irradiation. Lip and intra-oral lesions are usually quite amenable to irradiation and electrocoagulation. Radium seeds and needles are the accepted methods of treating tongue malignancies in nearly all cancer clinics. Primary lip malignancies can almost always be controlled by adequate irradiation, and better cosmetic results obtained than with surgery. Metastatic neck glands often necessitate a combination of surgery and irradiation.

Malignancies of the Pharynx, Tonsil, and Larynx.—These have been almost entirely relegated to the field of irradiation. The pharyngeal and tonsil lesions are usually highly malignant and radiosensitive. In carcinoma of the tonsil practically all of the recorded five-year cures have been produced by irradiation. Intrinsic carcinoma of the larynx is considered surgical by many authorities, and the results have been good. Equally good irradiation results have been reported by Coutard and others. The extrinsic laryngeal involvements are treated almost entirely by this method for palliation, and with the hope of occasional arrests.

Carcinoma of Thyroid. — For this condition much palliation has been achieved by irradiation, with permanent results in a small percentage of cases. The majority of the cases submitted are postoperative or recurrent, as the diagnosis of malignancy of the thyroid is usually not made, except in advance cases, until after operation.

Carcinoma of the Bronchus.—Here little has been accomplished, either by irradiation or surgery. Occasional palliative effects occur after irradiation, but these are no doubt due to the reduction of the inflammation accompanying the growth. Practically no permanent results have been obtained in carcinoma of the esophagus. At times the primary growth in the esophagus has been completely destroyed, but the patient dies later as the result of liver metastasis.

Cancer of the Stomach and Intestines.—These show an even less favorable prognosis, irradiation being of doubtful palliative value. Intestinal malignancies, if early, are entirely in the domain of surgery; while squamous-cell malignancies of the anal region represent the only field where irradiation may be indicated, except for palliative reasons.

Cancer of the Rectum.—Radium and roentgen-ray therapy have been of quite definite palliative value in advanced cancer of the rectum by checking the bleeding and causing shrinkage of the local growth. In many instances the patient's life has been prolonged, and he has been made more comfortable, even without colostomy, until death is produced by distant metastasis.

IN UROLOGY

Irradiation has been more successful in the treatment of urological conditions. In the highly malignant testicular tumors it has been generally used in the treatment of the pelvic glands, and in many quarters for the preoperative treatment of the primary tumor. Preoperative treatment of the rapid-growing, highly malignant tumors of the kidney cortex is also advocated, and apparently justified. In extensive inoperable bladder papillomas and carcinomas, irradiation is indicated.

Localized bladder tumors, if early, may be resected; surgery offering little or nothing to the patient where the growth covers most of the bladder. Here, irradiation will check bleeding, frequently producing definite disappearance of tumor tissue, and in highly malignant tumors may arrest the growth permanently. In extensive growths, if cauterization is to be used with irradiation, it should follow the irradiation and not precede it.

Some palliation has been achieved in carcinoma of the prostate, chiefly in relieving pain in the bone metastasis in the spine and pelvis.

CARCINOMA OF THE BREAST

Carcinoma, when apparently confined entirely to the breast, is usually treated by surgery alone. If axillary glands are discovered at operation, then postoperative irradiation should be carried out. When axillary glands are present, the case cannot be considered entirely surgical, but is better treated by a combination of surgery and irradiation; or irradiation alone, if the growth is large and the history shows that the progress has been rapid. In recent years preoperative treatment of the entire breast and axilla by roentgen rays (for cases with axillary involvement) has been widely encouraged. This is carried out by means of prolonged fractionated daily doses over a period of three or four weeks, followed by operation in six weeks to two months. Irradiation in inoperable and recurrent

malignancies has won an indisputable place as a palliative measure in breast malignancies.

CARCINOMA OF THE UTERUS

Carcinoma of the cervix uteri has been treated in England, France, the Scandinavian countries and in the United States almost entirely by irradiation for the past few years. Voluminous statistics have shown its superiority over the surgical operation, with its attendant high mortality.

There has been steady and gradual progress in the field of radiation therapy—apparatus has improved and, most important of all, knowledge has increased. This latter fact has undoubtedly been the greatest incentive to progress. Those of us who are using roentgen-ray apparatus at a voltage of a half-million or more have noticed a far greater improvement in the primary regression in cervical carcinoma patients than was seen when we were treating with two hundred thousand volts. However, as other treatment factors of time, filtration, fractionation of dosage and total dosage have also been changed, it is not logical to attribute this improvement wholly to the increase in voltage, but probably to the more adequate irradiation which the pelvis has received. Radium is still used in conjunction with the external roentgen ray in the treatment of all cases of cancer of the cervix.

Early carcinoma of the fundus has yielded good results in the past from surgery. Results of cases treated by irradiation alone closely approximate those of surgery. A combination treatment of preoperative intra-uterine radium and postoperative roentgen ray, with surgery, shows better results than either method when used alone.

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POSTERIOR VAGINAL HERNIA*

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DISCUSSION *by William P. Kroger, M. D., Los Angeles; Bon O. Adams, M. D., Riverside; Hall G. Holder, M. D., San Diego.*

POSTERIOR vaginal hernia is an oddity which is usually easy to recognize if one is aware of its possibility. It consists of a peritoneal sac, with abdominal contents, which has pushed its way through the cul-de-sac, presenting itself in the vagina. Its surgical repair is generally successful; however, many of the cases reported had repeatedly been mistaken for high rectoceles, with resultant failure in repair before the true nature of the condition was recognized.

CLASSIFICATION

Posterior vaginal hernia falls into Miles's[9] classification of pelvic hernia, which is a general term embracing all herniae with a peritoneal sac going through the pelvic floor. These pelvic herniae are further subdivided according to their point of appearance; *i. e.*, vaginal hernia in the vagina, perineal hernia in the perineum, and pudendal hernia in the labia. The vaginal herniae are further subdivided into anterior and posterior, according to the point of exit of the sac in relation to the uterus. Miles does not group postoperative vaginal herniae separately but, as Masson and Simon[8] point out, "they form a distinct type and should be included as a third subdivision in this classification."

Cystocele and rectocele are not included in the classification, since a peritoneal sac is not present. Furthermore, Miles[9] does not include prolapsus of the uterus accompanied by a large bulging cul-de-sac in his classification. He states that this condition is due to a descent of the floor of the pelvis and presents "no true hernial sac, and no ring or aperture through which the viscera herniate." He describes this condition as elytrocele or vaginal enterocele.

LITERATURE

But few cases of vaginal hernia have been reported in the literature. According to Barker,[1] the first case recorded was published in the early part of the eighteenth century by Garengeot. In 1804, Sir Astley Cooper[4] included an illustration of a case in his classic work on hernia. Bueermann,[3] in 1932, found eighty-six cases of vaginal hernia recorded in the literature, some of which were found with incomplete data or only by title. Of this number, Bueermann was able to evaluate the data on seventy-six cases and of this number, fifty-six, or 73.8 per cent, were found to be of the posterior vaginal type, whereas fifteen, or 19.7 per cent, were of the anterior type. No indication as to the location of the hernia was found in 6.5 per cent of the cases. Since that time Black[2] and Williamson (quoted by Black) have each reported one case, while Dew[5] and Stearns[10] have each reported two cases. These make a total of sixty-two cases of reported posterior vaginal hernia.

Through the courtesy of Dr. Bon O. Adams, in whose service the following case was operated by Doctor Adams and myself at the Riverside Community Hospital, I will add to the sixty-two cases previously reported, the sixty-third, as follows:

REPORT OF CASE

Mrs. L. R. H. Age, forty.

Chief Complaint.—Protrusion from the vagina, associated with a bearing-down feeling in the pelvis when on her feet.

Family History.—The family history is negative. Menstrual periods regular; twenty-eight-day type and of six days' duration. Moderate menorrhagia for the past three years. No menstrual pain. Always has had moderate leukorrhea.

Two children living and well, eleven and three years of age. The first delivery, eleven years ago, was by forceps. Ten years ago, a stillbirth occurred at term. This was also a forceps' delivery, and the child weighed thirteen and one-half pounds. Nine years ago a trachelorrhaphy, perineorrhaphy, a Baldy-Webster suspension, and left oöphorectomy were performed. The left ovary was removed because of a simple cyst (7 by 5 centimeters). Three years ago cesarean section was performed two weeks before the expected term of pregnancy.

Present History.—Shortly after the cesarean section the patient felt as if something were "dropping down in the vagina," only when on her feet. In the past year and a half this had been associated with a protrusion from the vagina "the size of a fist," and a bearing-down feeling in the pelvis after being on her feet throughout the day.

* Read before the General Surgery Section of the California Medical Association at the sixty-sixth annual session, Del Monte, May 2–6, 1937.